

With the authors compliments

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Some Problems of Medical Education in London.

AN ADDRESS

BY

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SOME PROBLEMS OF MEDICAL EDUCATION IN LONDON.*

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the Westminster Hospital.

I FEEL that I shall at once obtain your acquiescence when I say at the outset that education is a subject of recent and widespread interest. Far from precise in its principles, uncertain in its fundamentals, and ever shifting in its scope and methods, it is only just coming within the range of scientific consideration, and although it is one upon which each of us feels an inborn sense of being an authority, yet in dealing with it Governments have failed and the reputations of statesmen have been made and lost. Speaking from the presidential chair of the Educational Science Section of the British Association for the Advancement of Science, at its recent meeting at Leicester, Sir Philip Magnus thus described the present educational condition: "Notwithstanding the undoubted progress which we have made, it cannot be denied that in this country there still exists a large amount of educational unrest, and dissatisfaction with the results of our efforts during the last thirty years. This is partly due to the fact that there is much loose thinking and misinformed expression of opinion on educational questions. No one knows so little as not to believe that his own opinion is worth as much as another's on matters relating to the education of the people. In this way statements, the value of which have not been tested, pass current as ascertained knowledge, and very often ill considered legislation follows. In this country, too, the difficulty of breaking away from ancient modes of thought is a great drawback to educational progress. Suggestions for moderate changes, which have been most carefully considered, are deferred and decried if they depart to any great extent from established custom; the objection to change very often rests on no historical foundation. Occasionally, too, the change proposed is itself only a reversion to a previous practice, which was rudely broken by thoughtless and unscientific reformers." If, as I should suppose, this description would be admitted by those best qualified to judge as accurate when applied to general education, primary, secondary, and perhaps even in some measure to University, it is, I feel sure, to be regarded as applicable in the main to that particular branch with which the ceremony of to-day

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is connected and of which alone I am in any way qualified to speak—the medical. This altogether unsatisfactory state of things, which exists in spite of the extension of knowledge that has been acquired of the methods and practice in general education in this and other countries, and of the numerous plans that have been tried, Sir Philip Magnus attributes to the want of coherent ideas as to what is really required, and, what is more, to an absence of scientific examination of the problems presented, based on accurate observation and conditioned experiment. This explanation, however, will not altogether suffice to account for the unrest and dissatisfaction that obtains in several quarters in respect to the special branch of training that concerns the profession of medicine. In this case the very nature of the subjects of instruction is largely responsible for the difficulties that exist, though the action of certain institutions is not to be disregarded as contributory.

That we may the more clearly understand the problems connected with medical education, and the more readily appreciate the difficulties connected with their solution, it is desirable to consider briefly the objects with which the course of training is pursued, and, secondly, the nature and character of the subject-matter of which that training consists. It should further be borne in mind that however suitable and profitable for general culture and mental discipline much of this subject-matter may be, it is with a practical end as a branch of technical education that the training is pursued.

THE OBJECTIVE OF MEDICAL EDUCATION.

So long as medical men are considered to be a necessity—an arguable proposition, I admit—the ultimate object of medical education will be the supply of suitably instructed persons for attendance on the public, whether as private practitioners or for the service of the State; in the latter capacity is to be included those duties connected with public hygiene and the pursuance of that first object of the art of medicine, the prevention of disease. It may well be, as indeed there are already indications of it being, that as the work of the medical officers of health extends and develops, and people themselves become more careful and sensible in their living, so large a diminution of sickness and disease will come about that the need for the ordinary medical man and the physician will very considerably decrease, and then will be witnessed the spectacle, unique of its kind, of a profession that in the single-hearted pursuit of its calling is destroying the very sources upon which its maintenance depends. As contributing to this result is the work accomplished by that growing band of investigators whose time and energies are devoted to searching out the secrets of

nature, the advancement of science for its own sake, leaving the practical application of their results in great measure to those who more immediately serve the public.

There is, however, what one may look upon as a more immediate object to be aimed at in the course of medical training, and that is the examination tests which it is necessary to impose in order to ascertain, so far as may be, the fitness of the individual to practise his profession for the public benefit. The mention of examination at once introduces to us some of the most difficult as they are fundamental problems connected with the subject I am discussing, and time only permits me on this occasion shortly to indicate some of the directions along which their investigation would lead us. The special and peculiar relations that the practice of the healing art bears to the community necessitate the imposition of some test of the capacity of those who follow it, but no one who has any experience of medical examinations would deny that at best they are but most imperfect means of ascertaining the capabilities of a candidate, and, moreover, cannot be other than inadequate when it is recollected that it is the fitness of hundreds of candidates that has to be enquired into. That examinations, both in their scope and conduct are continually being improved upon is admitted, but that they more than suffice to ensure that the successful student possesses a sufficiency of technical knowledge to prevent him being dangerous when armed with the weapons and powers which a registrable qualification affords, is open to grave doubt. Now and then, as in all human endeavour, mistakes may occur, and the deserving may fail to pass, or more rarely the unfit may get through, but my experience would lead me to say that such cases are very exceptional, and that the public may rest confident in the adequacy of the examinations for all practical purposes.

That the examiners in the many and diverse subjects that make up the medical curriculum should be actual or recent teachers of their subjects is generally conceded, but whether the students should be examined by their own teachers is a point upon which very opposite opinion and practice has prevailed. Here in London, and it is with London medical education that I am specially concerned, it has hitherto been the boast that no student presents himself before those who are his own instructors, at least in the oral and practical parts of the examination, and elaborate precautions are taken by those charged with the management and arrangement of the examination to ensure this. By this plan it is argued that, the application of the test being in wholly independent but competent hands, a fairer result is attained and the opportunity for even unconscious favouritism avoided. To the same end is the identity of the candidate in some degree veiled by

his dropping his name and assuming a number. This method was almost if not quite peculiar to London, and was made possible by the complete separation of the medical schools, where the instruction is given, from the examining bodies by whom the degrees and diplomas are conferred, a condition which is also peculiar to this City. Elsewhere for the most part the knowledge of the candidates is tested by their own teachers, and for a long time only by them, although for some years past it has been the practice to associate with the teacher one from outside, either as co-examiner or simply as assessor. Recent regulations of the University of London in respect to certain examinations would seem, for the first time, to tend in the same direction. It would be apart from my present purpose to discuss in detail the relative merits and objections of these several methods, but some of the advantages, as well as disadvantages, of each plan will be apparent to the most superficial enquirer, as also that considerable grounds for well founded difference of opinion must exist, and that from the nature of the case it must remain a matter of opinion and not of fact.

Another question, and one that closely affects vested interests and thereby offers the greatest difficulty in settlement, concerns the multiplicity of bodies in the three Kingdoms that are empowered to grant qualifications to practice, as well as the number of qualifications that admit to the register. In England, Scotland, and Ireland there are no less than twenty-one Universities, Colleges, and other Corporations, which, either alone or in groups, have the power to give degrees or diplomas in medicine and surgery; and among them they furnish a like number of separate titles that confer the legal right to practise the profession of medicine. The mere statement of such a fact is sufficient to suggest a host of reflections, foremost among which is that there must of necessity be a considerable variation in the standard of the examinations, and, within the limits imposed by the General Medical Council, also in the conditions of admission to examination, and to say this is at once to represent a very doubtful state of affairs, yet probably not quite so unsatisfactory as might at first sight appear. No one in their senses would think of making such an arrangement were he starting *de novo*, but as so many of the Institutions of this country that have grown up and developed over long periods of time appear, as indeed they are, complicated and cumbersome for the end in view, none the less in the working are productive of less mischief than might be supposed, and on the whole not inefficiently accomplish the desired result. It is a system that cannot be defended as it stands, and is a reproach to the organisation of medical teaching. Numerous have been the attempts to introduce some uniformity in the examin-

ations. To the lover of system and order, no doubt the ideal plan would be the often advocated State examination, carried out by examiners appointed and paid by the Government, and the same in the three divisions of the kingdom, which every one who aspires to practice the profession should pass, whatever higher degree or diploma he might subsequently take. One, and not the least, of the advantages that would result from this method would be the virtual abolition of several of the licensing bodies which at present provide a qualification on the minimum terms and would then have no further *raison d'être*, since no one would take their diplomas for the honour they confer if compelled to obtain the State title. However much this plan has been desired and strongly advocated by some, so far no real attempt has ever been made by Parliament to give effect to it; rather, as is so often the case, first one compromise and then another has been effected which has only partially remedied the evil. Such compromises so far have taken the shape of combination between one or more of the licensing bodies so as to diminish the number of available examinations without doing pecuniary injury to the Corporations concerned, for it is this aspect that has so largely influenced the settlement of the question.

Once, in 1879, as the outcome of some years of negotiation, all the licensing bodies in England, including the Universities, were brought to an agreement whereby a single portal to the profession was to be established, but the arrangement fell through when on the point of being ratified. In 1884 the Royal College of Physicians of London and the Royal College of Surgeons of England entered into a scheme for the formation of a conjoint Board of Examiners, each College undertaking to "abstain, so far as allowed by law, from the exercise of its independent privilege of giving a qualification necessary for admission to the Medical Register." This combined diploma of the Royal Colleges anticipated the effect of the Act of 1886, by which a qualification in medicine and in surgery was made obligatory as precedent to registration. In Scotland the Royal Colleges of Physicians and Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow have combined to grant a triple diploma, the Colleges, as in England, retaining their right to confer the higher title of their Fellowship independently.

Closely connected with the subject of greater uniformity in the qualifying examinations is that of a degree for London students, the importance of which it is difficult to overstate. The demand for a degree—by which is meant a University title of M.D., giving the holder the right to call himself "Doctor," in contrast to the Diplomas of the Royal Colleges of Physicians and Surgeons (L.R.C.P. and M.R.C.S.), or

of the Apothecaries Hall (L.S.A.), which are equally registrable and confer the legal qualifications to practise—for the London medical student was one of the most powerful factors in the ten-year-long struggle previous to the reconstruction of the University of London in 1898. It was this demand that may be fairly said to have inspired and, in great measure, maintained that struggle in the hope that the University would, in its altered condition, meet the just and reasonable requirement. Briefly, the situation was this: the greater number of English medical students were educated in the metropolis, a few only pursuing their studies at Oxford, Cambridge, and other provincial centres, and of them the major proportion came to London to obtain their qualifications at the Royal Colleges or the Apothecaries Hall, an almost insignificant number of the total taking the degree of M.B., and fewer still of M.D., at the University of London. Now, in public estimation, a medical man, however capable he may be, who does not possess the right to put the letters M.D. after his name or to call himself "Doctor" unchallenged, is apt to be regarded, much to his detriment, as an inferior order of practitioner, or to be looked upon as of far less account than the holder of an M.D. degree, whencesoever this may have been obtained. However unreasonable this may be, and however numerous may be the exceptions, it nevertheless was, and to a great extent still is, a bottom fact in the situation. The University of London never laid itself out to meet this demand, as is the case in other Universities in the three kingdoms, and its complete isolation from education and its limitation to examinational functions only enabled it to take this position and to have claimed for it, as was done before a Royal Commission (1888) by its then Vice-Chancellor, Sir James Paget, that its degrees were honours degrees only, and not intended for the average man. Hence it came about that the great majority of the students had to be contented with the qualifications of the Royal Colleges or of the Apothecaries Hall, the conditions for obtaining which were not so prohibitive, nor were the examinations quite so severe as at the University, though the stringency of the latter was, as I can affirm as an examiner, scarcely so real or the test so far-reaching as was supposed. The unsatisfactory nature of the position was further intensified to the London student, inasmuch as by compliance with similar, and in some cases not any more severe conditions as regards study, and as the outcome of an examination often distinctly inferior as a test to that of the London Corporations, his fellow students in other divisions of the kingdom could obtain the coveted M.D., and flaunt the same to the disadvantage of their English rival. It was particularly this which kept up the feeling of injustice and sustained the agitation, especially as whilst the London University

imposed no residential requirement, but accepted the candidates from anywhere and everywhere, a certain period of residence was an essential condition elsewhere, which as much as anything, on the score of expense, prevented the student who had already entered on his curriculum in London for the sake of its superior advantages in teaching and experience, presenting himself for examination at the provincial and other Universities. It was the cost also that contributed to the comparative inaccessibility of the London degree, the preparation for which entailed a longer period of study and consequent greater money expenditure than was requisite for the diplomas of the Colleges, and that helped to increase the somewhat fictitious superiority of the London degree by restricting the number of candidates.

It cannot be contended that this demand on the part of the London student has been in any way met by the reconstituted University. It is true that the examinations have been much improved, due to the influence exerted by the Boards of Studies, which are composed of teachers who know what is wanted and how to bring examinations and teaching into line, and not allow the latter to be cramped and ineffective, through being obliged to conform to examinations the conditions of which were of the most rigid character, and framed by those who had long since ceased to instruct, as was the case in the unreformed University. But notwithstanding this, the degree of M.B., and still less the coveted one of M.D., which alone gives the right to the title "Doctor," is very little, if at all, more accessible to the average student than it was before, and this chiefly because of the longer time that is required for its attainment. Very few obtain the M.D. without a course of study extending over many years, which is prohibitive to the majority; though the recent increase of the fees for this examination from £5 to £20 has doubtless had some effect. Nor does there seem much probability of the present position being materially altered, since there is no likelihood of the existing University departing from its course, and there is still less chance of a second University being established especially adjusted to meet the requirements of metropolitan students only in all faculties, such as was so warmly advocated by a former Principal of this College, Dr. Wace, and was so nearly accomplished; whilst the proposal that the Royal Colleges should seek powers to grant a degree of M.D. to their diplomates, with or without any addition to their present examination, has already been condemned by a Royal Commission, and it may be hoped would never be acceded to either by Parliament or by the Privy Council.

Having regard to the peculiar significance attaching to a degree

in medicine, and the actual disability imposed on the practitioner by the want of the legal title of "Doctor," which the possession of the degree confers, I have never thought that the University of London was justified in claiming an honours and exclusive character for its degrees, but that here in the metropolis of the Empire the University should grant a degree in medicine accessible under reasonable conditions to the average man, who now has to be satisfied with the conjoint diplomas of the Royal Colleges which follow examinations taken as a whole are as satisfactory as any with which I am acquainted, even for University degrees, and more so than many. It would be perfectly possible and proper for the University to institute a set of honours examinations, the conditions for entrance to which should be of a much more stringent character and the standard for which should be considerably higher than for the pass examination, and more than ten years ago I prepared a scheme on such lines and submitted the same in my evidence before the Royal Commission presided over by Lord Cowper. I have never seen reason to doubt that such a plan would have met the requirements of the London student and at the same time retained for the University the honours position which it arrogated. But in connection with this subject of the standard of examinations I am desirous of referring to what appears to be one of the dangers attendant upon too frequently insisting on the high character of this examination and the lower character of that one, and that leads to such discussions as have recently taken place on the alleged degradation of the medical degrees of the University of London, a contention with which I have no sympathy, since I am of opinion that the changes which have been effected in the examinations have been the best thing the University has done for medical education. All such lines of argument tend to exalt the position of examinations into that of being ends in themselves, rather than being but means by which the general fitness of the candidate is tested before he is permitted to practise, or as serving to discriminate in what after all is a very imperfect manner between individuals. The examinational position of a student constantly belies his performance in after life, and men receive appointments on the strength of examinational distinctions that their subsequent work fails to justify. It is by no means those who come out at the top of the lists of successful candidates who make the most successful practitioners, or who afterwards contribute most to the advancement of special branches of our science, or who become the most capable teachers. In this respect the University of London has, I believe, done well by very considerably diminishing the scholarships and medals that were formerly given for the several subjects of the various examinations

for the medical degrees. I am far from being convinced that a complete abolition of all prizes and distinctive marks would not be in the long run advantageous, unless there should be throughout an honours course of study and examination completely distinct from a pass curriculum. No honours or prizes are awarded in connection with the conjoint examinations of the Royal Colleges, and I have never heard of their being regarded as insufficient or inferior on that account. Much of the loose talk and writing that one hears and sees on this subject would seem to suggest that the end and object of medical training was to pass a degree of high standard, and that the doing so was sufficient to ensure future success in the profession, and I have known of not a little harm being done from men postponing an examination in the hope of taking a better place later. Moreover, there is another and far more satisfactory manner of meeting the wishes of those who, possessed of superior ability or able to bear the greater cost entailed by a longer period of study, are rightly desirous of obtaining a title of superior distinction, and that is the Fellowship of the Royal College of Physicians of London, or of the Royal College of Surgeons of England, which at once stamps the possessor in the eyes of those who know in a far more distinctive manner than does any university degree.

THE MEDICAL CURRICULUM.

So far I have dealt with the objects to be attained by medical training, more particularly referring to the qualifying examinations. I would now proceed to consider the nature and character of the several subjects which make up the curriculum, the training in which precedes, of course, the actual examinations by which the knowledge of the candidate in the same subjects is tested. First and foremost, it cannot be too clearly realised that the practice of medicine in its various departments depends largely upon numerous contributory branches of science, each and all of which are progressing along their own routes, with their own aims and ends, independently of their practical application in various directions, among which is medicine. This last, therefore, being based on numerous inexact data, is for ever shifting—growing and extending here, withdrawing there, altering and amending some details, discarding others, and acquiring new facts and formulating fresh hypotheses. Hence it is being frequently revolutionised, and the contrast between the range of knowledge, both of facts and theories, included within the same titles of the different branches of science now and what it was five and twenty years ago is enormous, and it would be little exaggeration to say that much of what is commonplace to-day would be absolutely unintelligible

to our grandfathers and but only partly comprehended by our fathers. The great importance of all this on the conduct of medical education must be obvious. So extensive have some of these subjects become that they have been sub-divided so as to require special teachers for the different sections and to have a literature of text-books and journals to themselves. In illustration of this, I might mention that forty years ago, when I was a student at University College, the teaching of normal histology, or microscopic anatomy, formed the first half of the course of lectures on physiology, and all that was demonstrated of the structure of the tissues—except to those who joined a special practical class, which was not compulsory and for which a separate fee was charged—were several specimens, put up, as I can affirm, in the crudest fashion—for as Professor Sharpey's assistant it was my duty to prepare them—which were glanced at by a long queue of students in turn after lecture. Pathology, so called, had then a scarcely separate existence; animal chemistry, normal and morbid, was but a shadow; and such a matter as bacteriology was not dreamed of. The consequence of this ever-widening area of the subject-matter of medical education has necessarily meant more to be taught and more to be learned by the student, and our condition has come into line with so many other directions of human endeavour at the present day, which has been forcibly represented as trying to get a quart into a pint pot, the pot in this case representing either the acquisitive capacity of the student or the period of time that is allowed for the performance. Now this same time-element is one that governs in a very important manner the whole problem, especially as time in this case, as in so many others also, means money. It is obvious that the financial position of a medical student is one of expenditure only; and at an age when his brother in the civil service or in commercial pursuits is beginning to make something—and enough to keep himself by the time the just qualified medical man is starting in what is anything but a lucrative career—the young doctor has for many years been in receipt of no income from his own labours. Clearly, too, the longer the period of study imposed the longer will it be before a beginning of an income is made, and, consequently, the greater is the expenditure on maintenance. For the ordinary medical man, therefore, whose requirements must of necessity be kept steadily in view in any rearrangements that take place, it is a very serious matter to increase the compulsory period of study; and yet, with an ever-extending range of knowledge to be acquired, what is to be done?

Since 1892 no person may receive a qualification to practise until he has attained the age of 21, or until he has completed a period of

five years' study from the date of registration as a medical student. But it appears that this compulsory period is, as a rule, exceeded even for the final examination of the Conjoint Board, since from some figures taken out to show the duration of the curriculum under the five years regulation previous to June, 1904, only 28·5 per cent. qualify in less than six years, and 71·5 take six years and more to qualify; the average age at date of qualification being between twenty-five and twenty-six.

To adjust, therefore, an increasing range of subject-matter to what is virtually a fixed period of time that does not expand in proportion to the demand made on it, several courses are open, and from time to time have been resorted to. One plan is to strike out certain subjects altogether from the curriculum to make room for others, such as happened in the case of botany, which, formerly occupying a prominent place in the course of studies, is now discarded from the requirements for the conjoint diplomas of the Royal Colleges, and is represented in a different way as part of biology in the London University Examinations. Or it might be that the time devoted to the study of certain subjects was cut down, to allow of more being placed at the disposal of others. Formerly it was necessary for the student to attend two winter courses of lectures on anatomy and the same on physiology apart from dissections, and such practical work as was possible in the latter, which really meant microscopic anatomy. Now, however, one course of lectures in anatomy and one in physiology, as well as one in practical physiology and twelve months dissections is regarded as sufficient. Not so long ago it was requisite in order to obtain the membership of the Royal College of Surgeons for the student to attend two courses of lectures on surgery and three winter and two summer courses of surgical hospital practice; now one course of lectures and two winters' and two summers' hospital work are necessary. Other illustrations of the same might be given.

Side by side with the wider area of subjects there has developed an altered, and, in some respects, improved, method of teaching, the general trend of which is to become what is called more practical and with a greatly diminished attendance at formal lectures. In past times, when text-books were few and of inferior quality, teaching by lectures was the only mode of giving instruction, and lecturing was brought to a high pitch of perfection by the professor, whilst the student on his part became proficient in note-taking, often copying out his notes in extended form, a proceeding that both impressed on his mind the information he had received and at the same time manifested to him his deficiencies and the points he had failed to grasp, all which could be made clear at his next meeting with his teacher. Now, however,

when every teacher finds it necessary to compile a text-book, systematic lectures are decried, and, although I am conscious of being in a very small minority, I honestly think that a student acquires his general knowledge of a subject better from a course of lectures than from simply reading, and the knowledge so gained is more permanently retained. This is always supposing that the lecturer is a good one, and to object to teaching by lectures because lecturers are often bad is beside the mark: it should be the lecturer and not the method that should be condemned.

In one direction teaching has, without doubt, very considerably changed, and that is by the more personal contact of the student and teacher by means of demonstration and tutorial classes, by which the progress of the learner is continually being tested and his path cleared for him as he proceeds. This has been brought about in great part by the exacting demands of the examinations, which are more numerous than they were, and require special preparation to ensure success in passing them. Although the student of to-day has a much wider range of knowledge than he had, I much doubt, speaking as a teacher of more than thirty years' experience, and as an examiner for nearly the same period, whether the knowledge now acquired is so deep and thorough as it was formerly. The responsibility for learning is now a good deal shifted from the student to the tutor, whose duty it is to submit the information in a predigested form, lest the mental acquisitiveness of his pupil be overtaxed. Formerly the student learned himself, now he is taught. Nor must the friendly competition among the schools themselves to attract students be forgotten as a contributory cause of the altered teaching, which is now more definitely directed towards getting their pupils through the examinations. All this has no doubt helped to make formal lectures less popular and less successful, since their solid advantages are less apparent for examination purposes, and it is generally admitted that it is after he has passed his examinations that a man begins to learn his profession, his previous studies being only a foundation upon which his professional attainments are reared.

It would be interesting, had I the time, to trace out the gradual development of the medical curriculum pursued in London from, say, before the year 1858, when the Medical Act was passed that regulated the legal position of the medical practitioner and laid down the conditions of his admission to the Register, including therein the scope and standard of the qualifying examinations and inferentially of the subjects and courses of study, down to the present day. At the moment I am only concerned with the existing state of affairs. After passing a preliminary examination in general education, of

which 109 within the United Kingdom and Colonies are recognised as sufficient by the General Medical Council, varying considerably, as may well be supposed, in their stringency and standard, and, be it said, so far as the University of London is concerned, not of necessity including Latin within its scope, and further, having arrived at the age of sixteen, the lad is in a position to enter as a medical student. During the five years of his course the various subjects he takes up, of no one of which does he necessarily possess any knowledge, are grouped into elementary, intermediate, and advanced, an examination on each being held by the examining bodies at stated intervals.

Of no profession or occupation than that of medicine in its several departments can it more confidently be affirmed that there is no subject of human enquiry which may not at some time or other prove useful. Information which may appear to be the most remote from his calling nevertheless may on some occasion turn out to be helpful, and *nihil me alienum puto* is to no one so applicable as to the doctor, and this not only because his work brings him into intimate contact with mankind under all conditions and in all circumstances, but because that work itself is based upon a large number of separate branches of knowledge, and these again upon others, so that no system of science can be excluded from a contributory position to the pursuit of medicine. It is clear, however, that desirable as it may be for the doctor to be omniscient, his education cannot be conducted with such an objective, and a selection, therefore, must be made of those subjects most directly connected with the special medical sciences. It is these which are comprised in the elementary portion of the curriculum, viz., chemistry, physics, and biology, and are the subjects of the first professional examination of the Conjoint Board of the Royal Colleges of Physicians and Surgeons and of the preliminary scientific examination at the University of London, differing in extent and standard at the two places. Inasmuch as the possession of some acquaintance with natural and physical science is coming to be regarded as a part of the equipment of any person pretending to be educated, it is held by many that an elementary knowledge of these subjects, such as is required by the Conjoint Board, should be given evidence of before registration as a medical student, so that the entire five years might be devoted to the intermediate and professional sections. Occasionally this plan is followed by individuals, and a considerable number of students who find themselves compelled to devote the whole of their first year to getting up these subjects are obliged to postpone their final examination beyond the five year minimum, as I have previously pointed out. No doubt if it should come to be the case that entry as a medical student should follow on

passing what is now the first examination, still retaining the five years for the study of the other sections, a great advantage might be gained. But here enters the question of increased time, which means increased expense.

After an interval of not less than one year from the date of passing his Preliminary Examination, and after not less a period than eighteen months devoted to the study of anatomy and physiology, the candidate will be admitted to an examination in these subjects, which, supposing he is successful, as about 42 per cent. are, there will be two and a half years left in which to prepare for the Final Examination in the purely professional subjects, medicine, surgery, obstetrics, and gynaecology. A somewhat different arrangement exists for the Intermediate and Final Examinations for the degree of M.D. at the University of London, on the Internal side, the second and third years of the course being devoted to organic chemistry, anatomy, and physiology, which leaves only two years for the final subjects. By the nature of the case, anything like a complete knowledge of these important branches cannot be imparted in so short a time. The most that can be hoped for is to make the student conversant with broad pathological principles, to render him as far as possible familiar with the appearance of disease as it is presented in hospitals, carefully to train him in the complex art of examining a patient and making a diagnosis, to instil into him the outlines of therapeutics, and generally so to instruct him that he may continue afterwards to teach himself, since every case he is called upon to treat may contribute to his stock of knowledge if intelligently observed. With the constant extension of these numerous subjects that make up the curriculum, and with increasing specialisation in their teaching, it is not difficult to see that there has been a continual struggle among teachers, who each claimed more and more of the limited time for his own branch, and there has grown up a widespread feeling that the earlier and intermediate subjects had obtained more than their full share, and this has given rise to frequent changes in the curriculum not always to the best advantage. Manifestations of a spirit of sweet reasonableness have, however, been recently apparent, which augurs well.

Hitherto, all these various subjects, elementary, intermediate, and advanced, have been taught to men in eleven separate and distinct medical schools, each one connected with a large general hospital containing 200 to 800 beds, and completely equipped with a staff of teachers or demonstrators, varying in number at the different places from about thirty to fifty. For many years past it has been felt that there was a considerable waste of power and also extravagant

expenditure entailed by such an arrangement, and the increasing additions to the curriculum tended to confirm this view. Since also the maintenance of the schools is dependent almost wholly upon the fees of students, when the number of them commenced to decline, more especially those who required instruction in the earlier subjects, as was the case when the Cambridge Medical School began to develop in the remarkable manner it did in the early seventies, the position of the London schools became serious, particularly the small ones. The fact was also apparent that there was much more accommodation for teaching medical students than there was actually required. Moreover, it so happens that many of the earlier subjects, notably chemistry and physiology, are much more expensive to teach than are those more distinctly professional, and the expenditure thereon was continually increasing as fresh apparatus and laboratory accommodation was required. As may be supposed, all this pressed most heavily on the small schools, which were compelled to keep their equipment up to the requirements of the examining bodies, with the result that many of the teachers were paid for their labour but very poorly, or not at all. It was the teachers of the later subjects who suffered most, since it became necessary to guarantee fixed salaries to those who had charge of the elementary and intermediate sections, as they, for the most part, were not practising medical men, whilst the physicians and surgeons were supposed to obtain their return by their hospital connection. As I have already pointed out, these several groups of subjects have a very different relation among themselves to the actual practice of medicine, and, as a matter of fact, there is no reason whatever why the elementary ones should be taught at a medical school at all, and this is admitted by the examining bodies recognising instruction therein at places other than medical schools, as long as it is taken subsequently to passing the entrance examination, that is, during the first year of medical studies proper.

The most obvious way of meeting the difficulty, short of abolishing the elementary subjects from the medical curriculum proper, and making them a part of general education which the widespread decrease in classical teaching allows time for, unless athletics and games are to be considered as having a prior claim, was to bring about some concentration in the instruction in chemistry, physics, and biology among the medical schools themselves. Thirty years ago, when I had the honour of holding the office of Dean to the Westminster Hospital Medical School, I endeavoured, and very nearly succeeded, in effecting an association between my own and a neighbouring school for the joint teaching of at least the elementary subjects. A few years afterwards I almost concluded a similar

arrangement with another school. Now in both cases the scheme fell through mainly on account of the opposition raised to it by the teachers of these same elementary subjects; the physicians and surgeons were generally agreeable to the plan, and some of them even strongly supported it, but the vested interests of those who would have been to some extent pecuniarily affected were sufficient to prevent the attainment of what in itself was so eminently desirable. The objections to the joint teaching of anatomy and physiology were not altogether of an interested character, since there is a good deal to be said for the retention of the former, at least, as a subject of study at each school, although, in my opinion, the weight of reason is against so doing. My failures, however, convinced me that no concentration in the teaching of earlier subjects could be voluntarily effected among two or more of the London schools, and that only by some outside *force majeure* was any such procedure possible. When in 1899, after the report of Lord Selborne's Commission on a University for London, the medical demand for a reconstitution of the University took organised and coherent shape, the urgent need that there was for some concentration in medical teaching was always placed among the foremost arguments. Evidence to this effect was given before Lord Cowper's Commission (1892), and it received approval and support in the report of the same Commission, and lastly, "with a view to greater efficiency and economy," some concentration was enjoined by the Statutory Commission appointed in 1898, by which the Statutes of the present reconstructed University were drawn up. (See Statute 80.) The desirability—nay, more, the necessity—for some such course appears, therefore, to have been generally recognised, and opportunity given for it being carried into effect. Since on the grounds I have stated the schools were unable or unwilling among themselves to bring about the result, and were perforce driven into a competition which to the smaller ones was well nigh ruinous, it was clearly the duty of the University to take up the burden, and this it set out to attempt shortly after it had started on its new career in 1900. As having taken a very unimportant part in the initial proceedings connected with this matter, I think I am justified in saying that the feeling generally among the medical schools at that time—or certainly of the great majority of them—was in favour of some scheme by which the elementary subjects of the curriculum, and to some extent also the intermediate, should be taught at fewer centres, thus liberating the smaller schools at least, on whom the pressure of expenditure was relatively the greatest, free to devote their energies entirely to teaching the later subjects. Owing to the custom which had long

prevailed of a student entering for his complete curriculum at one school, and in many cases paying an inclusive fee at the outset, he was necessarily bound to that school, an arrangement, by the way, that among other advantages and disadvantages at least fostered a strong *esprit de corps*, which partially represented the academic feeling and pride of place that characterises the older seats of learning, but that the University of London seems to be incapable of fostering. There was always, therefore, the risk that if a student took up his elementary subjects at a school that he would continue there for the rest of his course, and that consequently those schools which might cease to teach the elementary part would soon lack students altogether, and this risk was still greater if the anatomical and physiological teaching were given up as well. No doubt this objection had stood largely in the way of concentration, unless the institution where these subjects should be taught was entirely distinct from any medical school. The objection, however, as will be seen, was not, and is not, insuperable, though that it is a great one may be admitted. I am not concerned to give any account of the negotiations and proceedings that the Faculty of Medicine entered upon at the invitation of the Senate in respect to this question, and it is sufficient for my present purpose to say that the outcome was an appeal by the Senate for funds to build and endow an institute of medical science under the control of the University. The requisite amount set forth for this purpose, including the equipment, was the modest sum of £375,000, and it was estimated that it would require nearly £20,000 a year for the upkeep. The appeal was submitted to the public towards the end of 1903, and resulted up to quite recently, I believe, in a response amounting to about £70,000 and a conditional offer of a site in close proximity to the University building from the Commissioners of the Exhibition of 1851. Nor am I called upon to enter into any criticism of such a course, the enormous cost of which appeared to not a few to foredoom it to failure, whilst its success would be largely at the expense of both University and King's Colleges, in the face of the determined opposition of certain of the other schools and the diminishing number of students entering in London; for there is not the slightest evidence to show that such an institution would be in itself an attraction as its sanguine supporters anticipated. The future of the scheme still remains undecided.

But what I am desirous of pointing out is that so far the University of London has utterly failed to bring about any concentration whatever during the seven years of its reconstituted existence, and what is almost as serious has, by the course it has followed, converted what was seven years ago a widespread feeling

among the metropolitan medical teachers of welcome towards the principle of concentration into one of very considerable hostility towards the principle, and has led to many of the schools resolutely opposing any coalescence, and confirming them more than ever in each maintaining its complete instructional equipment. The cause of concentration, which has received approval from all quarters and the strongest recommendation from Royal Commissions, has been certainly thrown back for many years. From such unsatisfactory proceedings on the part of those from whom other things were to be expected, it is pleasing to turn to one effort in this direction which, though small, has been a complete success. Pending action on the part of the higher powers engaged in schemes requiring hundreds of thousands of pounds, the smallest of the medical schools, viz., that connected with the Westminster Hospital, approached the authorities of King's College with a view to an arrangement by which the Westminster school should send its students to the King's College classes, where they have all the privileges, for the time being, of King's College students for the whole elementary and intermediate subjects of the curriculum, returning to Westminster for instruction in the final and hospital practice. My colleagues had come almost unanimously to realise the advantage of such a course, and thanks to the conciliatory and accommodating spirit evinced by the Committees of the two institutions charged with the arrangement, and more especially the tact shown by your Principal, and the great assistance given by Sir John Wolfe Barry, a member of the Council of this College, and Chairman of the House Committee of the Westminster Hospital, the matter was quickly and satisfactorily accomplished. The working arrangement has now been in force since 1905, and to us at Westminster it has given complete satisfaction, and I believe I am right in saying it is the same here. I may perhaps be pardoned a feeling of gratification in a result which long ago I had tried to realise, and towards which for many years I directed my best endeavours. I had almost forgotten to add that our mutual arrangement received the patronising approval of the Senate of the University. Now, it may be well asked, if this coalescence was able to be brought about so easily and satisfactorily, how was it that it could not have been repeated elsewhere? One great difficulty had been removed, or was in the way to disappearing. University College Hospital, with the teaching of the final subjects, had been definitely separated from the College which has been incorporated within the University itself, and a similar course is being followed here; thus the alleged undue influence upon students to continue their education at these places rather than elsewhere is to a very great extent abolished. I believe that if the University six or seven

years ago, when the medical schools would, for the most part, have welcomed the principle of concentration, had exercised upon the different schools a wise and judicious pressure towards giving effect to this principle, much might have been done in this direction, and, even had the success been only partial, a good deal would have been gained and encouragement given for a later renewal of their efforts. So far as I am aware, the provisions set forth in the Statutes for bringing the University through the Senate into intimate relations with its schools have never been given effect to, at least at those of medicine. Statute 76 lays down that "all schools of the University shall be open to the visitation of the University, and for that purpose the Senate shall make arrangements for obtaining reports at prescribed intervals of time on the efficiency thereof." Statute 79 also states that, on conditions, "the Senate may allocate funds for the erection or extension of buildings, or the remuneration of appointed or recognised teachers, or the provision or improvement of the equipment in a school of the University as a place of instruction or research, and may provide generally for its assistance or benefit." Had these provisions been carried out, however partially, as a University which is supposed to be a teaching one might be expected to have done, a far better feeling would have prevailed, with great benefit to medical education.

The success of any scheme of medical education will, of course, very largely depend upon a full supply of students, since it is by their fees that the arrangement will work, and by their numbers will the teachers be encouraged and inspired. As was so aptly pointed out in the course of the evidence given before the Committee appointed to enquire into the financial relation between hospitals and medical schools, presided over by Sir Edward Fry, "the greater part of the higher education in England is eleemosynary," that is to say, endowed; but so far as medical learning is concerned there is, with an insignificant exception, no endowment whatever in London for the necessary teaching, which is carried out in several of its departments almost or quite gratuitously, the students' fees being absorbed in the necessary expenses of rent, service, rates, and the like. It is often suggested that the fees should be raised, but the certain effect of this would be to still further diminish the number of students coming to London for their medical education in view of the opportunities offered in various provincial centres and in other divisions of the kingdom. Hitherto London has been looked upon as pre-eminent, at least in England, as a place for medical study, but it is more than doubtful whether such a claim can be maintained at the present day. The rapid development of the newer provincial Universities has entirely altered the position, and this not only as regards the elementary and intermediate subjects,

for the efficient teaching of which endowed professorships and magnificently equipped laboratories testify to the public spirit of the wealthy in the great cities of the country, such as Liverpool, Manchester, Birmingham, Sheffield, Newcastle, and Bristol. Officered in great part at first by London-taught men, they now largely furnish their own teachers from among their own students, with the result that an increasing number of medical students never come to London for any part of their professional education. Led, as I have already said, by Cambridge in the seventies, under the influence of the late Sir Michael Foster and Sir George Humphrey, who set out to establish in that ancient seat of learning a large modern medical school, the effect was soon felt in the London schools by a decrease in the entries for the earlier subjects, and with the establishment of each successive centre of teaching in the provinces, the number of the London students has progressively declined. Among other causes contributory to the same result was the lengthening of the compulsory period of study from four to five years in 1892. But even if other places might successfully compete with the metropolis in the matter of the preliminary and intermediate education, it was contended that London must still remain supreme as a clinical school, not only because of the abundance of material but also for the excellence of the teaching. It is, however, becoming very doubtful if this is as true as it undoubtedly once was. The growth of the large cities and towns in England presents a sufficiency of sick people as objects of study and instruction, and the organisation of the same by first-rate instructors—not always be it observed the same thing as the practitioners who are most successful or best known to the public—have gone very far to make these extra-metropolitan schools in all respects efficient, with the result that they meet the requirements of students of the district and even attract from distant places. If along with these facts it be remembered that the total number of individuals who enter the medical profession is steadily declining, falling from 919 in 1896 to 662 in 1906 in England, and from 1741 to 1393 in the United Kingdom, it will be apparent that the London medical schools must have been starved of students for some time past, and this from no shortcomings of their own, but by force of circumstances quite apart from their control. Moreover, it may be pretty confidently affirmed that this state of affairs is not likely to be materially altered, at least so far as regaining for London a virtual monopoly of the medical training of England. It behoves, therefore, those who are charged with the direction of these matters to realise the actual circumstances, and avoid the futility of spending enormous sums in setting up an additional school in London in the vain hope of attracting students

who are admirably provided for elsewhere. With this decrease in the number of the London students goes, of course, diminished receipts, and in consequence the greater need for retrenchment in expenditure by the schools. The constantly increasing demands for laboratories and their equipments renders this economy excessively difficult, though it clearly points to the desirability of concentration in the teaching even of the final subjects, which course is recommended by the University of London, and is, in some degree, being given effect to. At the same time the widest opportunity for purely clinical teaching should be provided, and the recognition by the University of a number of clinical teachers, elsewhere than at the eleven large general hospitals with schools attached, has given effect to this very desirable principle. With a larger number of instructors, and with a diminishing income from students' fees, the position of a medical teacher at the present time in London is not pecuniarily promising, and since a hospital appointment is far from being the almost necessary introduction to consulting practice that it formerly was, the remuneration of those concerned in conducting medical education is rapidly becoming a question of grave concern, in which it cannot be said that the public at large are uninterested. This aspect of the subject, however, I forbear from more than the mention of.

In the time at my disposal I have endeavoured to set forth certain of the problems connected with medical education in London at the present day. Some I have scarcely more than referred to; and the historical aspect of the subject, by which alone the full bearing of many of the questions can be understood and appreciated, I have been constrained to leave entirely untouched. Suffice it to say on this point, that up to about the middle of last century most of the systematic teaching took place in private medical schools unconnected with hospitals, the purely professional work consisting in "walking the hospitals" as the private pupils of the physicians and surgeons of the institutions. Since then medical schools of wider range have developed in connection with certain of the large general hospitals, the terms of association, financial and other, differing in almost every case; and with the organisation of the profession as regards education and examination, which followed on the Act of 1858, a well-arranged and definite curriculum was established. Gradually, as the subjects of study from their very nature extended and multiplied, and the knowledge required before approaching disease at the bedside became greater and greater, difficulties commenced to occur, and we are now witnessing the beginnings of the casting off of those subjects from the hospitals proper, and the relegating them to special institutions for their teaching, with what result the future will decide. The

peculiar position of the London University in respect to medical education, and the equally peculiar position that the degree of Doctor of Medicine takes in respect to the practitioner of our art, have necessarily rendered the University an interesting and, latterly, an important factor in the complicated questions at issue. Originally founded with more truly academic ideas, it very soon became a purely examination machine in which learning, except so far as it might be displayed in the written answers to certain questions in a limited time, was taken no account of, and no encouragement was given to research nor opportunity afforded for the association of learned men. It is not to be denied that, by a severe standard of examination, as evinced by the character of the questions set and the proportion of candidates rejected, it did for a time exert an indirect and satisfactory influence on medical education; but the general improvement that took place in the methods of teaching, together with a wider appreciation of the necessities of scientific training, all tended to impose a higher standard, and the influence of the University in this direction was superseded by other determinants. From the position it assumed in regard to the average student, the University soon ceased to concern other than a very limited number, and it was really not until the formation of an association for promoting a Teaching University in London, in 1884, that the Senate attempted to meet what was demanded of it, and it was fourteen years later before an Act was passed reconstituting the University on its present lines. Needless to say that the various educational and even the examinal bodies in London awaited with much interest the action of the new University, anxious to see in what way it would co-ordinate the teaching and adjust this to examination requirements, and above all, how it would meet the crying demand for a degree for the London student, questions that for more than a decade had been the subject of profound unrest. A wise and comprehensive policy was looked for that should improve and more firmly establish the London medical schools by concentration and combination, that should give teachers the controlling voice in the character of the examinations, and that should furnish the legal title of Doctor on satisfactory terms. But most of this, after seven years, is still to seek. The reconstitution of the University—a compromise between the views of those who maintained the all sufficiency of examinations and accounted it almost sacrilege to lay altering hands thereon, and those who admitting the necessity of tests, yet would subordinate them to the teacher and to teaching—was shackled with what has proved to be a cumbersome and unwieldy machinery, and has far from fulfilled the hopes and expectations of those who for so many years strove for its improve-

ment, and can hardly be looked upon as having satisfied the wishes of those more recent workers in the field who have played the greater part in directing its course. Opportunism and expediency have had their usual result, and the University of London has lost the great chance it had, when starting on its fresh course, of becoming the standard examining body for London. For many years past this honourable position has been most efficiently filled by the Royal Colleges of Physicians and Surgeons, though the qualifications that they grant give no legal right to the title of M.D. An association for examination purposes between the University and these Corporations was always contemplated, and a scheme for effecting the same was, I know, submitted, but was set aside, and the degree for the London student is no nearer attainment than before. What the University has and has not done for the concentration of medical teaching, and what help it has rendered to its schools, I have endeavoured to show, as I have testified to the improvement it has effected in the examinations and in their relation to the teaching.

Although in the remarks I have made on medical education here in London I have felt bound to point out what are to be regarded as serious shortcomings, they are not to be taken as expressing the opinion that the character and ability of those sent out from our metropolitan schools with the hall mark of our metropolitan examining bodies, are other than of the highest. The public may rest content that it is well served, and my criticism is directed towards the methods as they affect teacher and student, which it is so widely felt should and could be greatly improved.

UNIVERSITY OF LONDON.					CONJOINT BOARD OF R.C.P. & R.C.S.		
	Total Number of Men Candidates for M.B.	Passed.	Total Number of Men Candidates for M.D.	Passed.	Total Number of Men Candidates for Finals.	Obtained Conjoint Qualifica- tion.	Men Students Registered in England.
1899	129	77	67	40	586	487	864
1900	164	76	45	26	484	477	698
1901	186	114	55	30	519	439	552
1902	159	88	47	27	573	475	561
1903	171	110	59	44	489	430	544
1904	105	61	78	42	470	435	602
1905	153	98	40	30	449	434	559
1906	167	104	56	48	395	432	562